User Manual

& GUARANTEE CARD

Heat Pump Water Heater - Domestic

VENUS®

Dear Customer,

Thank you for purchasing Venus Heat Pump Water Heater. We have enclosed this handy installation manual to help you correctly install your system and in getting the maximum performance out of it.

There is also a section called “Trouble Shooting Guide” to assist you in setting right minor problems.

We wish you and your new “VENUS HEAT PUMP WATER HEATER” a lifetime of happy association.

⚠ WARNING

1. Before installing this product, read and follow all warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call 044-43401500 for additional free copies of these instructions.

2. This Domestic Heat Pump Water Heater is specifically designed for domestic hot water supply. Do not use it for any other applications.

Section 1

Introduction

Product Overview

Domestic Heat pump water heaters transfer heat from the ambient air to hot water tank, providing the most energy efficient hot water supply as compared to gas, oil, or electric heaters. Operation cost of domestic heat pump water heaters is 60%～80% less, saving your expenses in energy costs each year. Venus heat pumps are not only highly efficient, but also easy and safe to operate. Venus domestic heat pump water heaters are CE approved, using R407C refrigerant which is environmental-friendly and energy efficient.

General Features

1. Using heat energy from ambient air and reproduces more heat energy, saving 60%~80% energy compared to traditional heaters.
2. Providing hot water all the seasons for your house in domestic application.
3. No potential danger of any inflammable, gas poisoning, explosion, fire, electrical shock which are associated with other heating systems.
4. A digital controller is incorporated to maintain the desired water temperature.
5. Long-life and corrosion resistant composite cabinet stands up to severe climates.
6. Japanese Panasonic rotary compressor ensures outstanding performance, ultra energy efficiency, durability and quiet operation.
7. Self-diagnostic control panel monitors and troubleshoots heat pump operations to ensure safe and reliable operation.
8. Intelligent digital controller with friendly user interface and blue LED back light.
9. The heat pump can operate down to ambient air temperature of -10°C. (14°F.)

Section 2

Installation

The following general information describes how to install the domestic Heat pump water heater.

Note: **Before installing this product, read and follow all warning notices and instructions. Only a qualified service person should install the heat pump.**

Materials needed for Installation

The following items are needed and are to be supplied by the installer for all heat pump installations:

1. Plumbing fittings.
2. Level surface for proper drainage.
3. Ensure that a suitable electrical supply line is provided. See the rating plate on the heat pump for electrical specifications. Please take a note of the specified current rating. No junction box is needed at the heat pump; Connections are made inside of the heat pump electrical compartment. Conduit may be attached directly to the heat pump jacket.
4. It is advised to use PVC conduit for the electrical supply line.
5. Use a booster pump for pumping water in case of low water pressure.
6. A filter on the water inlet of tank is needed.
7. The plumbing should be insulated to reduce its heat loss.

Note: We recommend installing shut-off valves on the inlet and outlet water connections for ease of serviceability.

Domestic Heat Pump Water Heater Specification

Model		VDH 100	VDH 200
Rated heating capacity	kW	3.71	5.58
Power supply	V/PH/Hz	220-240V/1PH/50Hz	220-240V/1PH/50Hz
Rated power input	W	915	1250
Rated current input	A	4.15	5.89
Max power input	kW	1.29	1.25
Max current input	A	5.9	5.9
Heated water output	l/h	80	120
Rated outlet water temp	℃	55	55
Max outlet water temp	℃	60	60
Ambient temp	℃	-12℃ ~ 43℃	-12℃ ~ 43℃
Refrigerant / Charge Quantity		R407C/1.2kg	R22
Refrigerant piping diameter		Ø 9.52(inlet)/ Ø 12.7(outlet)	Ø 9.52(inlet)/ Ø 12.7(outlet)
Product Dimension	mm	850*320*540	850*320*540
Package Dimension	mm	980*400*680	980*400*680
Net weight	kg	28	28
Gross weight	kg	51	51
Noise	dBA	≤54dB(A)	≤54dB(A)
Anti-electric shock protection		Class 1	Class 1
Water-proof		IP*4	IP*4
Testing condition: Ambient temp: (DB/WB) 20℃/15℃, Inlet/Outlet water temp: 15℃/55℃.			

Note: The above design and specifications are subject to change without prior notice for product improvement.

Correct installation is required to ensure safe operation. The requirements for Venus heat pump water heater include the following:

1. Dimensions for critical connections.
2. Field assembly (if required).
3. Appropriate site location and clearances.
4. Proper electrical wiring.
5. Adequate water flow.

This manual provides the information needed to meet these requirements. Review all application and installation procedures completely before continuing the installation.

Installation Location

⚠ CAUTION!

1. DO NOT install the heat pump near to hazardous materials and places.

2. DO NOT install the heat pump under deep sloping roofs without gutters which will allow rain water, mixed with debris, to be forced through the unit.

3. Place the heat pump on a flat slightly pitched surface, such as concrete or fabricated slab.

This will allow proper drainage of condensation and rain water from the base of the unit. If possible, the slab should be placed at the same level or slightly higher than the filter system/equipment.

Installation details

All criteria given in the following sections reflect minimum clearances. However, each installation must also be evaluated, taking into account the prevailing local conditions such as proximity and height of walls, and proximity to public access areas. The heat pump must be placed to provide clearances on all sides for maintenance and inspection.

1. The installation area must have good ventilation and the air inlet/outlet must not be hindered.
2. The installation area must have good drainage and be built on a solid foundation.
3. Do not install the unit in areas accumulated with pollutions like aggressive gas (chlorine or acidic), dust, sand and leaves etc.
4. For easier and better maintenance and troubleshooting, no obstacles around the unit should be closer than 1000mm.(See Figure 1)

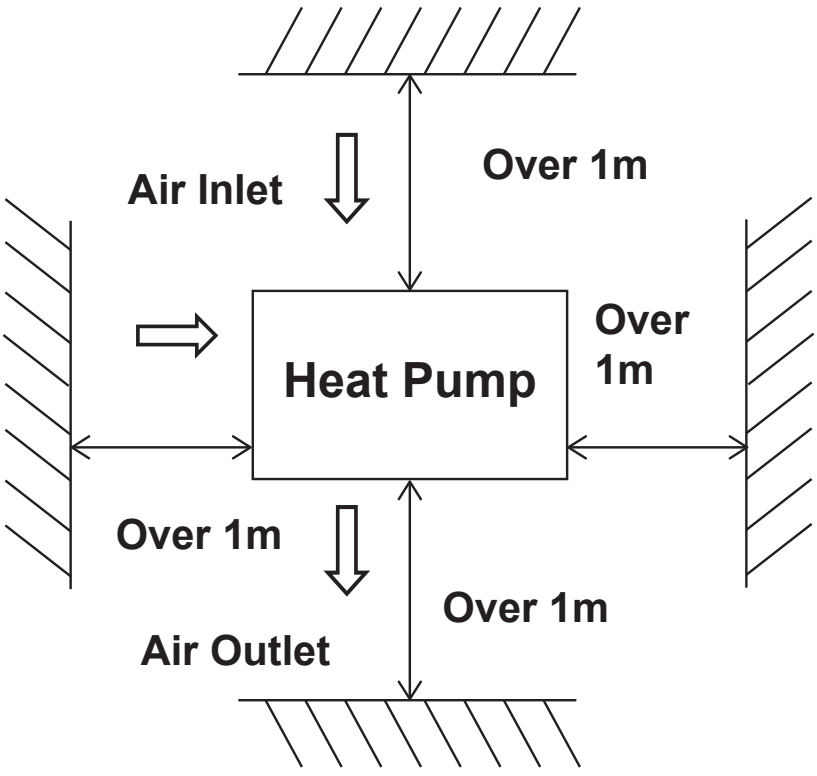


Figure 1

5. For the units which installed at the rack on the outer wall, the rack should be fixed with wall-bolts. And the heat pump must be installed with shockproof bushes to prevent vibration and/or imbalance.
6. Even though the controller is waterproof, care should be taken to avoid direct sunlight and high temperature. In addition, the heat pump should be placed to ensure quality viewing of the controller.
7. The plumbing pipes must be installed with proper support to prevent possible damage due to vibration.
   Running water pressure should be kept 0.2Mpa to 0.6Mpa. Otherwise, booster pump or pressure reducing valve should be installed.
8. The acceptable operating voltage range should be within ±10% of the rated voltage. When heat pump units are installed in parallel, ensure that the voltage differences, between these units, are within ±2%.
9. The heat pump unit must be grounded /earthed for safety purposes.
10. If possible, the unit can be installed with auxiliary facility of rain, snow and sunlight proof.

Drainage and Condensation

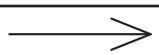
Condensation will occur from the evaporator when the unit is running and drain at a steady rate, depending upon ambient air temperature and humidity. The more humid the ambient conditions, the more condensation will occur. The bottom of the unit acts as a tray to catch rainwater and condensation. Keep the drain holes, located on the bottom pan of the unit base, clear from debris at all times.

For the units which installed at the rack on the outer wall, proper drain hose should be connected to the heat pump for condensation drainage.

Water Connections

Plumbing materials needed

Main Drain, Filter, Heat Pump, Ball Valve, Water Pump, One-way Valve.

Symbol	Name	Symbol	Name
	Ball Valve		One-way Valve
	Filter		Flow Direction

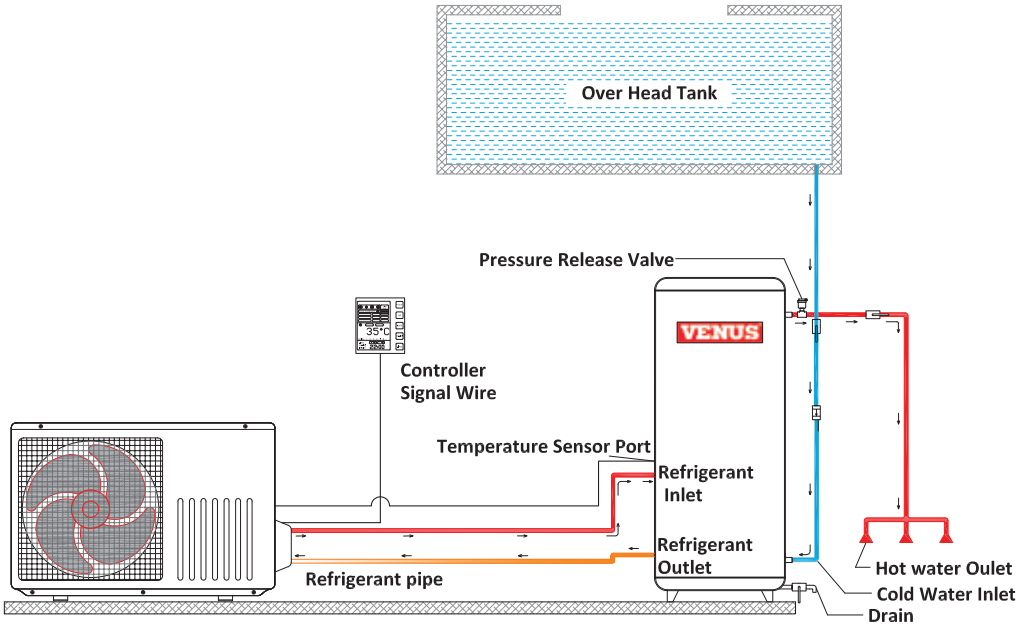


Figure 2

The heat pump must be protected from Reverse flow of water. If there is any chance of Reverse flow, provide a check valve between the water tank and the cold water inlet.

Refrigerant Pipe Connections at the Heat Pump

1. Wrap up the thin and thick connecting pipes and a wire to length with insulated band.
2. Screw off the two/three way stop valve and the caps of insulated water tank inlet and outlet.
3. Take off the plastic blockage of the connecting pipes, connect them with the heat pump and water tank, and tighten it with wrench.

   Note: The force should be moderate. Too much effort, it's easier to damage the joint, while too small effort, the joint cannot be sealed.
4. Remove the spool and valve needle cap of two/three way stop valve, open the spool of small valve to 1/2 circle with an Allen wrench. On hearing the sound of gas flow, withstand the valve needle core of the refrigerant inlet for 3 secs, repeat 3 times until you feel the exhaust gas is cold.
5. Check the joints with soap water if leakage or not. Leakage cannot exist.
6. Open the two/three way stop valve completely with Allen wrench, and seal the cap.
7. The replenishment valve and stop valve may be required to be insulated, which depends on the ambient temp at local, lest they freeze and burst in winter in use.

Plumbing installation requirements

1. When water pressure exceeds 0.6Mpa, please use reducing valve to reduce the water pressure to 0.3Mpa – 0.6Mpa.

2. Each part connected to unit needs to be connected with method of loose joint and installed with intermediate valve.
3. Ensure that all plumbing has been properly completed and then proceed to do a water leakage and pressure test.
4. All the pipelines and pipe fittings must be insulated to prevent heat loss.
5. Install a pressure release valve at the highest point of the system of heat preservation tank, and it is advised to be installed outside.
6. Install a drain valve at the lowest point of the system to enable the system to be drained during cleaning .
7. In order to reduce the back pressure, the pipes should be installed horizontally.
8. And minimize the elbows (90 degrees connections).

Electrical Connections

⚠ **WARNING** —Risk of electrical shock or electrocution.

Ensure that all high voltage circuits are disconnected before commencing heat pump installation. Contact with these circuits could result in death or serious injury to users, installers or others, due to electrical shock and may also cause damage to property.

⚠ **CAUTION** — Label all wires prior to disconnection when servicing the heat pump. Wiring errors can cause improper and dangerous operation. Check and ensure proper operation after servicing.

General Information

Wiring connections must be done according to the wiring diagram found on the inside of the heat pump access panel or see addendum A.

The heat pump must be grounded / earthed. A ground Terminal is provided on the inside of the heat pump electrical compartment. (See Figure 3)

Single System Single Phase
(Figure 3)

Power supply

1. If the supply voltage is too low or too high, it can cause damage and/or result in unstable operation of the heat pump unit, due to high in rush currents on start up.
2. The minimum starting voltage should be above 90% of rated voltage. The acceptable operating voltage range should be within ±10% of the rated voltage. The voltage difference between phases of a three phase power supply should be within ±2%.
3. Ensure the cable specifications meet the correct requirements for the specific installation. The distance between the installation site and mains power supply will affect the cable thickness. Follow the local electrical standards to select the cables, circuit breakers and isolator breakers.

Grounding

In order to prevent electrical shock in case of leakage from unit, install the domestic air to water heat pump water heater according to electrical standards.

1. Do not interrupt the voltage supply to the heat pump frequently as this may result in a shorter life expectance of the heat pump.

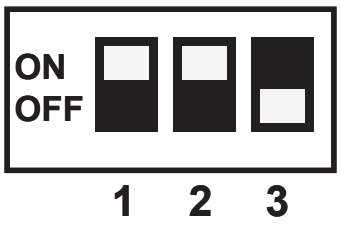
Controller PC board Settings

The Controller PCB has a pin selectable toggle switch which must be set according to the specific installation requirement.

NOTE:

Before any changes are made to the pin settings, ensure that the mains supply power is OFF at the circuit breaker or physically disconnected from the mains supply.

The single system heat pump unit controller PC Board consists of a 3-pin selectable toggle switch.



Single system and single phase

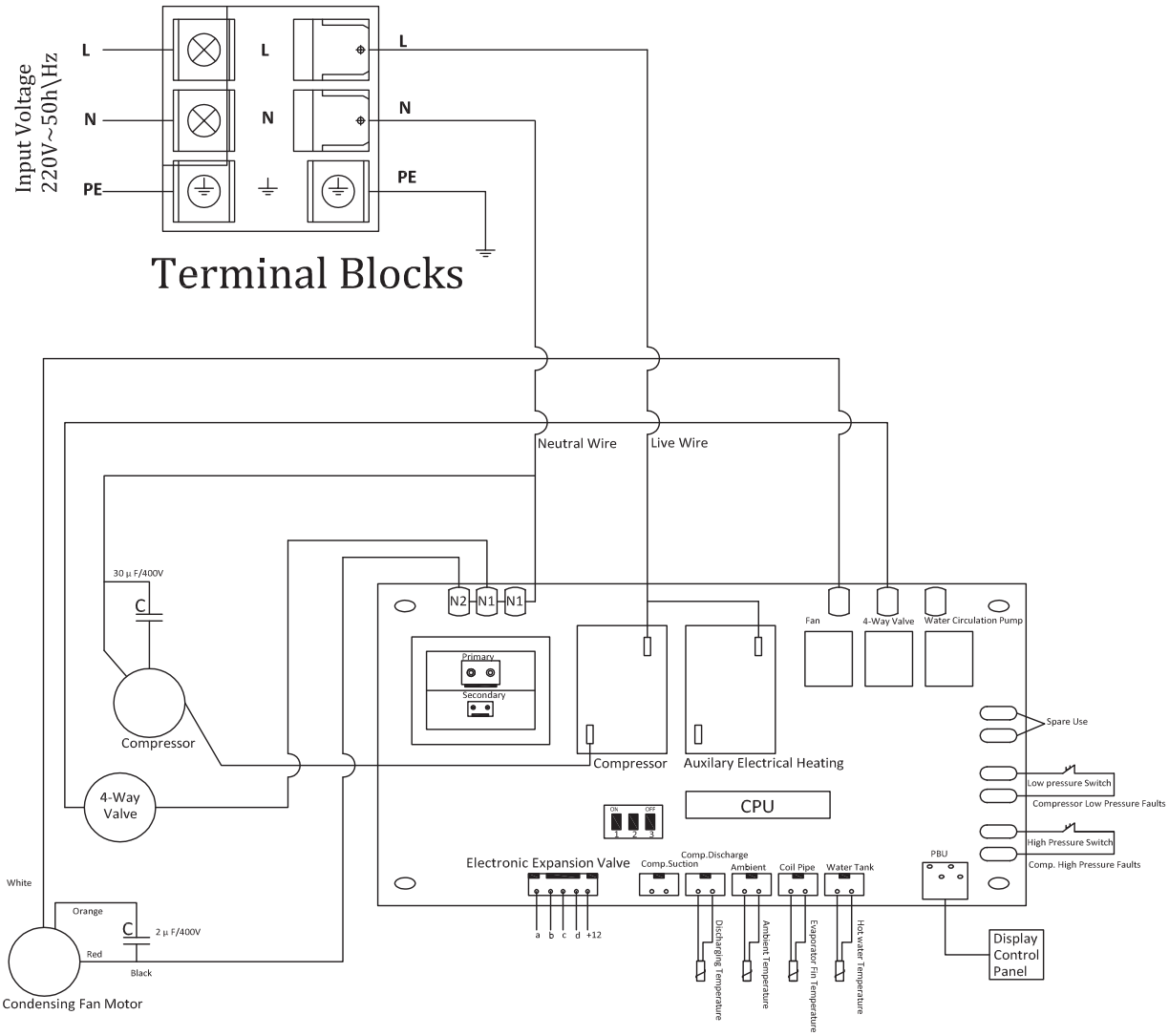
Figure 4: Switch Layout

Note: When switch 1 is set to OFF, circulation pump will function. ON, it doesn't.
When switch 2 is set to OFF, electric heating will function. ON, it doesn't.
When switch 3 is set to OFF, expansion valve will function. ON, it doesn't.

Factory Default Setting

Description	Switch1	Switch2	Switch3
1 phase, Domestic air to water heat pump water heater, Cycle heating	ON	ON	ON

Electrical Wiring Diagram



Section 3
Operating Heat Pump

LCD User-Friendly Interface Controller

General instruction

The control panel applies to a single system single phase domestic air to water heat pump water heater.

The operation panel features:

1. Capacitive touching keys for higher operating sensitivity and unlimited key operations.
2. Minimal electromagnetic susceptibility and interference.
3. Stylish appearance for easy viewing purposes.
4. Dust Proof.
5. Automatic Key Lock function (AKL).

Controller panel

Operating Controller

Operation guide

When the power supply to the air to water heat pump water heater is switched on for the first time, an audible tone is heard from the controller. The LCD will be displayed in a dimming mode (no back light). At this time the touch keys are locked (see “lock key display” symbol).

Keys explanation:

Unlocking Keys: Press the “power” key for 3 seconds until you hear an audible tone, then release the key. The back light of the LCD display will turn on and the key pad is unlocked with no “lock key display” symbol. The keypad will automatically lock after 60 seconds, displaying the “lock key display” symbol.

“**power” key:** By pressing the “power” key, the unit can be switched ON or OFF.

“up” and “down” keys: Press to Increase and Decrease values.

“setting” key: Press for Inquiry, Parameter and Password setting

“timer” key: Press for timer setting, timer eliminate and clock setting.

Controller Set-Up

1. **Temperature setting:**

   Make sure key-pad is unlocked. Press the “up” key, “temperature setting” symbol is flashing and the set temperature is displayed. Press the “up” key again, the displayed temperature will increase. Press the “down” key, “temperature setting” symbol is flashing and the set temperature is displayed. Press the “down” key again, the displayed temperature will decrease. The range of water temperature can be set from 20°C (68°F) to 60°C (140°F) (default = 55°C (131°F)).

2. **System status display values:**

   Make sure key-pad is unlocked. Press the “setting” key and enter into inquiry panel with “inquire” symbol on display.

The inquiry codes are from A1 to Er. By pressing the “setting” key sequentially, the desired inquiry code will be selected and value displayed. To exit the inquiry panel, press the “setting” key once after the last inquiry code (Er) is reached. Details are shown as follows:

A1—coil pipe temp.
A2—compressor suction temp.
A3—compressor discharging temp.
A4—ambient temp.
Er—error code

3. Parameter setting:

NOTE: THESE SETTINGS ARE PRE-SET ACCORDING TO THE MANUFACTURER’S SPECIFICATION FOR SAFE HEAT PUMP OPERATIONS. DO NOT CHANGE THESE SETTINGS AS IT WILL INFLUENCE THE SAFE OPERATION OF THE HEAT PUMP.

Press the “setting” key for more than 3 seconds, until an audible tone is heard and enter into the setting panel with “setting” symbol on display.

By pressing the “setting” key sequentially, the desired setting code will be selected. The value of each setting can be adjusted by pressing **“up”** and **“down”** keys (Setting values see below). To exit the setting panel, press the “setting” key once after the last setting code (P6) is reached.

Details are shown as follows:

/ / / - Set water temp in tank (30°C-99°C (86°F~210.2140°F), default: 50°C(122°F))

L1- Setting is used to compensate/calibrate for the difference between displayed water temperature (A6) and the actual measured water temperature in tank (use a good quality thermometer). (0~15°C (32°F~59°F), default: 0°C (32°F))

L2- Minimum outlet water temperature deviation. This value setting is set to indicate to

the compressor when to re-start until desired temperature is reached. (3~18°C (37.4~64.4°F) default: 5°C (37.4°F)). For example, set water temp. = 25°C (77°F), L2 = 5°C (41°F), the compressor will stop at 25°C (77°F) and re-start at 20°C (68°F)

L4- Desired water temperature limit (30~99°C (86~210.2°F) default: 60°C (140°F))

L5- allowed electric heating ambient temperature (0~35°C (32~), default: 7°C (44.6°F), where 0°C (32°F) means no electric heating).

L9- Two speeds wind temp control the fan motor. (10°C -45°C (50°F~113°F), default: 45°C (113°F)) (Not Applicant)

H1-defrosting period (20~99 minutes default: 45 minutes)

H2- defrosting start temperature (1~-15°C (33.8~5°F) default: -1°C (30.2°F))

H3-defrosting time (5~20miniutes default: 8 minutes)

H4-defrosting exiting temperature (1~40°C (33.8~104°F), default: 20°C (68°F))

P1-electronic expansion valve regulation cycle (20~180 seconds, default: 60 seconds)

P2- degree of super heat (-8~15°C （17.6~59°F), default 0°C（32°FZ))

P3- allowed discharge temperature (70~135°C (158~275°F), default: 92°C (197.6°F))

P4- expansion valve opening as four-way valve is defrosting (6~55°C (42.8~), default: 32 °C (89.6°F))

P5-expansion valve minimum opening (6~30°C (42.8~86°F), default: 15°C (57°F))

P6-super heat compensation (0~12 default: 4)

Note: If the controller is chosen with electronic expansion valve not used (the toggle switch 3 on controller PC Board is on OFF.), it doesn't display P1-P6 when setting.

4. Clock setting:

Press the "timer" key for more than 8 seconds until an audible tone is heard and the "timer" symbol disappears. The hour value is flashing and can be adjusted by pressing **"up"** and **"down"** keys. Press the "timer" key for minute adjustment and repeat as previous. Press the "timer" key to exit.

5. Timer setting:

The heat pump consists of two separate timing functions. Timer 01 and 02 are used to set the ON/OFF times of the heat pump within 24 hour period.

Heat pump ON/OFF timers:

01—ON/OFF timing

02—ON/OFF timing

Press the “timer” key and enter timer 01 ON time. Set the ON time as in **Clock Setting** section. Press “timer” key again to set timer 01 OFF time. Set the OFF time as in **Clock Setting** section. Repeat sequence until all timer settings are completed.

If, however, a timer is not used, set ON and OFF times to 00:00. Timer setting can be randomly selected. For example, Timer 01 ON, Timer 02 OFF.

After completing all timer settings, the controller will display the following:

To cancel the timer feature, press the “timer” key for more than 3 seconds until an audible tone is heard, then release key, timer is now cancelled.

6. Installer Password Control :

This feature enables the installer/agent to have control and use of the normal operation of the heat pump on a monthly basis by monthly password control. For example: If there is an agreement which involves monthly installment, the installer/agent can utilize this feature by applying password control.

Press the “setting” key for more than 3 seconds until an audible tone is heard and release key, enter into setting panel with “setting” symbol and “L” settings on display. Press the “setting” key for more than 8 seconds until an audible tone is heard and release key, enter into Password Control with “C” on display.

Set-up installer/agent Password

The installer/agent Password consists of 4 groups of double digit numbers (C1 to C4 with range from 00 to 99). Choose your Password carefully to avoid any unauthorized access. For example: If C1 = 79, C2 = 04, C3 = 33 and C4 = 07 then the Password is 79043307.

Now enter C5. C5 (range from 01 to15, 00 disables installer/agent Password) indicates the period in number of month(s), 30 days/month. For example: C5 = 08, the unit will be disabled after 8 months (240 days). To enable the unit, Password is needed.

How to enable the unit

Press the “setting” key for more than 3 seconds until an audible tone is heard and release key, enter into setting panel with “setting” symbol and “L” settings on display. Then press the “setting” key for more than 8 seconds until an audible tone is heard and release key, enter into Password Control with “C” on display. Input Password to enable the heat pump and reset C5 (range from “01” to “15”, “00” disables installer/agent Password) to desired period. If an incorrect password is provided the heat pump the Error Code 11E will be displayed.

Forgotten/Reset Password

This function enables the installer/agent to enable the heat pump unit in the event of a forgotten password. All preset settings will be reverted back to the original factory default settings once the heat pump is enabled.

Make sure that the lock symbol “ “is on display, press the “setting” key until an audible tone is heard and the display back light is lit, release key. The clock will now display, **“00:”** and the heat pump unit is enabled.

REMEMBER: **All preset settings is reverted back to the original factory default settings. The password function will be disabled (C1=01, C2=01, C3=01, C4=01, C5=00). Please ensure that the heat pump unit is set up correctly. (Refer to controller set-up)**

7. Manual / Forced Defrosting:

Although this heat pump features an automatic defrosting function, a manual defrosting function enables the user to manually defrost the heat pump when unusual frosting appears.

Make sure key-pad is unlocked. Ensure that heat pump unit is in running mode, displaying the heat symbol.

Press the "▼"key for more than 8 seconds until an audible tone is heard, and release key. The heat pump will be in defrosting mode and the "defrost" symbol will be on display--defrost.

8. Heating mode:

Heating mode--: In heating mode, the heat pump will function as a swimming pool heater, ensuring that the swimming pool water is kept to a set water temperature.

General Operating Guide

Initial Start-up Precautions

CAUTION — Refrain from using this heat pump if any electrical components have been in contact with water. Immediately call a qualified service technician to inspect the heat pump.

CAUTION — Keep all objects clear above the heat pump. Blocking air flow could damage the unit and may void the warranty.

REMEMBER: **All preset settings is reverted back to the original factory default settings. The password function will be disabled (C1=01, C2=01, C3=01, C4=01, C5=00). Please ensure that the heat pump unit is set up correctly. (Refer to controller set-up)**

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Section 4

General Maintenance

Controller Error Codes

The following Common Error Codes for the heat pump units will be displayed on the controller panel:

Common Error Code

CODE	NAME	CODE	NAME
05E	Compressor high pressure and/or faulty switch	15E	Faulty inlet water temperature sensor
06E	Compressor low pressure and/or faulty switch	16E	Faulty Evaporator (heating) pipe sensor
09E	Controller communication	18E	Abnormal compressor discharge temperature and/or Faulty compressor discharge temperature sensor
11E	Installer password control	21E	Ambient temperature too low and/or Faulty ambient temperature sensor
12E	Compressor high discharge temperature	29E	Faulty compressor suction temperature sensor

Inspection and Service

Venus domestic heat pump water heaters are designed and built to provide long life performance, when installed and operated properly under normal conditions. Periodic inspections are important to keep your heat pump running safely and efficiently.

Owner Inspection

Venus recommends that inspections on heat pumps are done frequently, especially after abnormal weather conditions. The following basic guidelines are suggested for your inspection:

1 Make sure the front of the unit is accessible for future service.

2. Keep the top and surrounding areas of the heat pump clear of debris.

3. Keep all plants and shrubs trimmed and away from the heat pump especially the area before the fan.

4. Keep lawn sprinklers from spraying on the heat pump to prevent corrosion and damage.

5. Ensure that the ground wire is always properly connected.

6. The filter must be maintained on a regular basis in order to ensure clean and healthy water to protect the heat pump from damaging.

7. Keep inspecting power and electrical components' wiring to make sure their normal operation.
8. All the safety protection devices have been preset by manufacturer ; **please refrain** from changing **these settings. If any changes are needed, please contact the** authorized **installer/agent.**
9. If the heat pump is installed under roof without a gutter, ensure that all measures are taken to prevent excessive water from flooding the unit.
10. Do not use this heat pump if any electrical part has been in contact with water. Contact a authorized installer/agent.
11. If the increase of power consumption is not due to cold weather, please consult with the local authorized installer/agent.
12. Please turn off the heat pump and disconnect it from the mains power supply, when not in use for a prolonged period of time.

Troubleshooting

Use the following troubleshooting information to resolve issues/problems with your heat pump.

WARNING — RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.

Ensure that all high voltage circuits are disconnected before commencing heat pump installation. Contact with these circuits could result in death or serious injury to users, installers or others, due to electrical shock and may also cause damage to property.

DO NOT open any part of the heat pump as this may result to electrocution.

1. Keep your hands and hair clear of the fan blades to avoid injury.
2. If you are not familiar with your heater:

a) **DO NOT** attempt to adjust or service the unit without consulting your authorized installer/agent.

b) **PLEASE** read the complete Installation and/or User's Guide before attempting to operate service or adjust the heater.

IMPORTANT: Turn off the mains power supply to the heat pump prior to attempting service or repair.

7. Keep inspecting power and electrical components' wiring to make sure their normal operation.
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8. All the safety protection devices have been preset by manufacturer ; **please refrain** from changing **these settings. If any changes are needed, please contact the** authorized **installer/agent.**
9. If the heat pump is installed under roof without a gutter, ensure that all measures are taken to prevent excessive water from flooding the unit.
10. Do not use this heat pump if any electrical part has been in contact with water. Contact a authorized installer/agent.
11. If the increase of power consumption is not due to cold weather, please consult with the local authorized installer/agent.
12. Please turn off the heat pump and disconnect it from the mains power supply, when not in use for a prolonged period of time.

Troubleshooting

Use the following troubleshooting information to resolve issues/problems with your heat pump.

WARNING — RISK OF ELECTRICAL SHOCK OR ELECTROCUTION.

Ensure that all high voltage circuits are disconnected before commencing heat pump installation. Contact with these circuits could result in death or serious injury to users, installers or others, due to electrical shock and may also cause damage to property.

DO NOT open any part of the heat pump as this may result to electrocution.

1. Keep your hands and hair clear of the fan blades to avoid injury.
2. If you are not familiar with your heater:

a) **DO NOT** attempt to adjust or service the unit without consulting your authorized installer/agent.

b) **PLEASE** read the complete Installation and/or User's Guide before attempting to operate service or adjust the heater.

IMPORTANT: Turn off the mains power supply to the heat pump prior to attempting service or repair.

Problems and Corrective Action

NO.	Problem Description	Possible Cause	Corrective Action	
1	Error code 05E	1. Measured Pool Temp < Actual Pool Temp	a) The pool water temperature sensor and PC Board are not compatible.	Use the correct sensor.
			b) The pool temperature sensor is not in the correct position.	Position the sensor correctly.
		2. The Y shaped filter is blocked or jammed resulting into lower water flow.	Clean the filter.	
		3. No water in pool or is lower than the water inlet (Weir).	Fill the pool with water.	
		4. The plumbing is blocked or the valves are damaged or closed.	Repair or replace the plumbing and/or valves.	
		5. Too much air in the plumbing result in reduction in flow rate.	1. Remove air lock from the system. 2. Make sure that the circulation pump is working correctly.	
		6. Circulation pump faulty.	a) Circulation pump damaged.	Repair or replace circulation pump.
			b) Circulation pump is too small or the distance from the heat pump is too far.	Install correct circulation pump for specific application or shorten the distance between circulation pump and/or the heat pump and/or other equipment.
		7. Excessive refrigerant charge volume.	Charge the correct volume of refrigerant specified on the label.	
		8. Control cable of the high pressure switch damaged or disconnected.	Replace the damaged cable or reconnect.	
		9. High pressure switch can not be reset.	Replace high pressure switch.	
		10. Input of the high pressure sensor is shorted with common, error code 05E is still displaying.	Replace the PC Board.	
		11. The refrigeration system is blocked (by ice or dirt).	Find the cause of blockage and replace the filter and/or re-vacuum the system.	
2	Error code 06E	1. Refrigerant leakage.	Detect leakage and repair. Vacuum, charge refrigerant and start heat pump.	
		2. Control cable of the high pressure switch damaged or disconnected.	Replace the damaged cable or reconnect.	
		3. Low pressure switch cannot be reset.	Replace low pressure switch.	
		4. Input of the high pressure sensor is shorted with common, error code 05E is still displaying.	Replace the PC Board.	
		5. The refrigeration system is blocked (by ice or dirt).	Find the cause of blockage and replace the filter and/or re-vacuum the system.	
3	Error Code 09E	1. The controller cable damaged or disconnected.	Replace damaged controller cable or reconnect.	
4	Error Code 11E	1. Incorrect installer/agent control password.	Input the correct control password.	
5	Error Code 12E	1. Insufficient refrigerant charge volume.	Charge the correct volume of refrigerant specified on the label.	
		2. Compressor discharge temperature sensor faulty or damaged.	Replace the compressor discharge temperature sensor.	
		3. PC Board damaged.	Replace the PC Board.	
6	Error Code 15E	1. Pool temperature sensor damaged.	Replace pool temperature sensor.	
		2. Pool temperature sensor connector (plug) disconnected and/or oxidized due to damp or water.	Reconnect or clean pool temperature sensor and wrap it with insulation tape.	
		3. The controller and/or PC Board faulty or damaged.	Replace the controller or PC Board.	
7	Error Code 16E	1. Defrost temperature sensor faulty or damaged.	Replace the defrost temperature sensor.	
		2. Defrost temperature sensor connector (plug) disconnected and/or oxidized due to damp or water.	Reconnect or clean defrost temperature sensor and wrap it with insulation tape.	
		3. The controller and/or PC Board faulty or damaged.	Replace the controller or PC Board.	

8	Error code 18E	1. Compressor discharge temperature sensor faulty or damaged.	Replace the compressor discharge temperature sensor.	
		2. Compressor discharge temperature sensor connector (plug) disconnected and/or oxidized due to damp or water.	Reconnect or clean compressor discharge temperature sensor and wrap it with insulation tape.	
		3. The controller and/or PC Board faulty or damaged.	Replace the controller or PC Board.	
9	Error code 21E	1. Ambient temperature sensor faulty or damaged.	Replace the Ambient temperature sensor.	
		2. Ambient temperature sensor connector (plug) disconnected and/or oxidized due to damp or water.	Reconnect or clean Ambient temperature sensor and wrap it with insulation tape.	
		3. The controller and/or PC Board faulty or damaged.	Replace the controller or PC Board.	
10	Error code 29E	1. Compressor suction temperature sensor faulty or damaged.	Replace the Compressor suction temperature sensor.	
		2. Compressor suction temperature sensor connector (plug) disconnected and/or oxidized due to damp or water.	Reconnect or clean Compressor suction temperature sensor and wrap it with insulation tape.	
		3. The controller and/or PC Board faulty or damaged.	Replace the controller or PC Board.	
			3. Check whether the thermal relay is damaged, if so, replace.	
11	The heat pump is not heating	1. User's incorrect operation and/or parameter settings.	a) The pool temperature setting is set too low and the desired temperature cannot be reached.	Re-set the pool water temperature to the correct range.
			b) The difference between the required pool temperature and the heat pump restart temperature (L2) is too big.	Re-set by reducing the value of L2.
			c) Timer function has been set to a specific ON and OFF time, which does not allow sufficient time for the heat pump to operate.	Re-set the timer.
			d) No electrical power supply to the heat pump (no display on the controller).	1. Check and ensure that circuit breakers are ON.
				2. Test voltage on the PC Board L/N/G Connectors.
				3. If power is not restored, replace cable.
		2. Problem with controller or PC Board.	a) The temperature displayed is more than 45˚C.	Check the pool water temperature sensor, replace if faulty.
			b) PC Board is damaged due to burnt relays.	Check and find out the cause, find faulty relay(s) and replace.
			c) PC Board microcontroller chip faulty.	Replace the PC Board.

12	Slow increase of water temperature	1. Insufficient refrigerant.	1. Check for leakages, if found, repair and re-charge refrigerant as per volume specification on label.	
			2. If no leakage was found, re-charge refrigerant as per volume specification on label.	
		2. The heating capacity of the heat pump is insufficient for the size of the pool.	Increase the size or number of heat pump units.	
		3. Serious residues/dirt occurred on the heat exchanger.	Clean the heat exchangers.	
		4. The evaporator coil is dirty or jammed and this will affect the heat exchange efficiency.	Clean the evaporator coil.	
		5. Poor design of insulation for the pool.	It is recommended to use a pool insulation cover.	
		6. The length of the pipes is too long and/or improperly insulated.	1. If the length of the pipes cannot be done, ensure well insulated piping.	
			2. Increase the size and number of heat pump units.	
13	The controller displays "00"	1. The controller cable damaged or disconnected.	Reconnect or replace controller cable and wrap it with insulation tape.	
		2. PC board damaged.	Replace PC Board.	
		3. Pool temperature sensor and/or cable disconnected or damaged.	Reconnect or replace pool temperature sensor and wrap it with insulation tape.	
14	No display on the controller	1. Mains power supply is abnormal.	a) The main power supply cables is disconnected or damaged.	Reconnect or replace the mains power supply cable.
			b) The main power supply voltage is lower than 175V.	Check and ensure that the mains power supply cable', length and thickness, is within the specifications, if not replace with thicker cable to ensure less voltage drop.
		2. PC board power cable is disconnected or the fuse is burnt.	Reconnect PC Board cable or replace the fuse.	
		3. PC Board transformer is damaged.	Replace the PC Board transformer.	
		4. The controller cable damaged or disconnected.	Reconnect or replace controller cable and wrap it with insulation tape.	
		5. PC Board damaged.	Replace the PC board.	
15	The fan does not operate	1. Fan motor capacitor damaged (under this circumstance the fan motor will overheat).	Replace fan motor capacitor.	
		2. The motor windings has been burnt.	Repair or replace the fan motor.	
		3. The display is ON but heat pump unit is not in running mode/ON.	Press the power button and turn On the heat pump unit.	
		4. Fan motor relay damaged.	Check and replace if damaged.	
		5. No fan motor output from PC Board.	Replace PC board.	
		6. Fan motor cable disconnected or damaged.	Reconnect or replace fan motor cable.	
16	The compressor does not operate while the fan is working	1. Compressor damaged (under this circumstance the compressor motor will overheat).	Replace compressor capacitor.	
		2. Compressor connecting cable is burnt.	Replace compressor connecting cable.	
		3. The compressor windings have been burnt.	Repair or replace the compressor.	
		4. The compressor is jammed or blocked.	Repair or replace the compressor.	
		5. AC contactor does not work.	a) The AC contactor winding is damaged or the contactor is jammed and cannot close.	Replace the AC contactor.

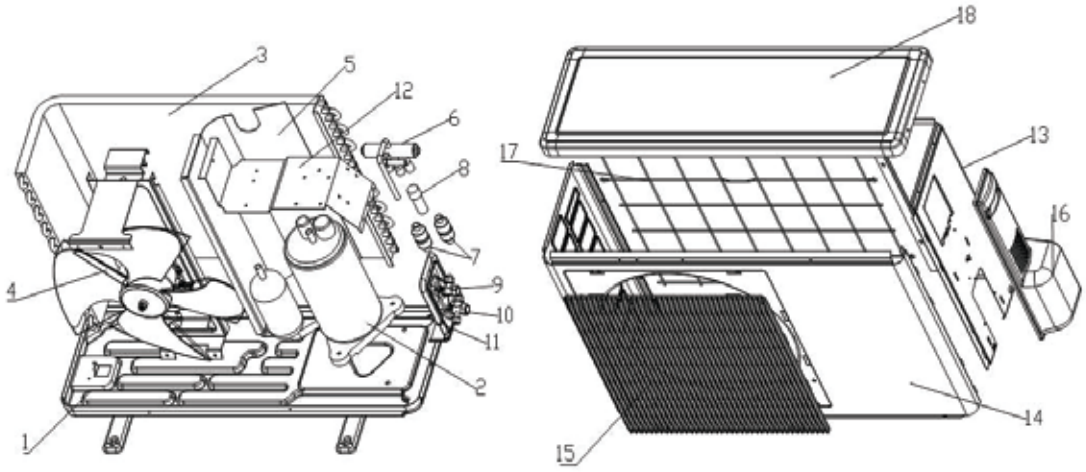
			b) The main power supply voltage is lower than 175V.	Check and ensure that the mains power supply cable', length and thickness, is within the specifications, if not replace with thicker cable to ensure less voltage drop.
			c) No compressor relay output from the PC Board.	Check and/or replace compressor relay or PC Board.
		6. Thermal relay damaged.	Replace the thermal relay.	
17	Frost or ice	1. Fan is not working.	Refer to **"problem description** No.15 ".	
		2. Insufficient refrigerant or the refrigeration system is blocked.	1. Find the cause of blockage and replace the filter and/or re-vacuum the system.	
			2. Check for leakages, if found, repair and re-charge refrigerant as per volume specification on label.	
			3. If no leakage was found, re-charge refrigerant as per volume specification on label.	
		3. The defrost parameter is not set correctly.	Re-set the defrost parameter to the correct value.	
		4. The defrost sensor is not placed correctly.	Replace the defrost sensor to the correct position.	
		5. The 4-way valve cannot be reversed (The winding is damaged or the valve cannot be correctly reversed).	Check the 4-way valve to find the cause replace the winding or the 4-way valve.	
		6. Controller is damaged.	Replace the controller.	
		7. The refrigeration system has a problem.	Check and repair refrigeration system.	

Section 5

Components assembly

Illustrated Parts

VDH 100 / VDH 200



ITEM	DISCRIPTION	QTY	ITEM	DISCRIPTION	QTY
1	Base Plate	1	10	4” Stop Valve	1
2	Compressor, Rotary	1	11	Small Fixing Plate	1
3	Evaporator	1	12	Electronic compartment Board	1
4	Fan Motor/Fan Motor/ Fan Guard	1	13	Side Panel	1
5	Medium Partition	1	14	Fan Panel	1
6	Four-way Valve	1	15	Fan Net	1
7	Filter	2	16	Valve Panel	1
8	Pressure Release Valve	1	17	Back Net	1
9	3” Stop Valve	1	18	Top Board	1

VENUS®
WATER HEATERS

WARRANTY

Venus Heat Pump Water Heater & Tank are covered by warranty for a period of 1 year from the date of purchase, against manufacturing defects of all functional parts.

This warranty excludes any damages due to misuse, accident, negligence, tampering, unauthorized repair and normal wear and tear.

Please preserve this warranty Card along with the paid Bill from our Dealer. These Documents must be presented to the Service Centre to avail this warranty.

Customer Name :..... Model No : .....

Address : ..... Serial No : .....

..... Invoice No : .....

..... Date of Purchase: .....

Dealer's Name and Address :

Dealer's Signature

SERVICE LOG

Date	Description of complaint	Within Warranty.	Outside Warranty.	Signature

If you have any questions, problem or requierments of spare parts, get in touch with us for immediate attention at

The Customer Care Cell

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